

1. A fluid ejection cartridge for dispensing a bioactive fluid onto an ingestible sheet comprising:

a first reservoir containing the bioactive fluid; and

5 a first fluid ejector fluidically coupled to said first reservoir, wherein said first fluid ejector for ejecting at least a drop of the bioactive fluid onto the ingestible sheet.

2. The fluid ejection cartridge of claim 1, further comprising:

10 an ink reservoir containing an ingestible ink in proximity to said first reservoir; and

at least one ink ejector fluidically coupled to said ink reservoir, wherein said at least one ink ejector for ejecting said ingestible ink onto the ingestible sheet.

15 3. The fluid ejection cartridge of claim 2, wherein said first reservoir, said ink reservoir, said first fluid ejector, and said at least one ink ejector are formed as an integral replaceable unit.

20 4. The fluid ejection cartridge of claim 2, wherein said ingestible ink is dispensed in a human-perceptible form.

5. The fluid ejection cartridge of claim 2, wherein said ingestible ink is dispensed in a machine readable form.

25 6. The fluid ejection cartridge of claim 2, further comprising:

a second reservoir containing a barrier component in proximity to said first reservoir and said second reservoir; and

a second fluid ejector fluidically coupled to said second reservoir, wherein said second fluid ejector for dispensing said barrier component.

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7. The fluid ejection cartridge of claim 6, wherein said first reservoir, said second reservoir, said ink reservoir, said first fluid ejector, said at least one ink ejector and said second fluid ejector are formed as an integral replaceable unit.

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8. The fluid ejection cartridge of claim 1, further comprising an information storage element coupled to a controller having at least one parameter of the bioactive fluid that is communicable to said controller.

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9. The fluid ejection cartridge of claim 8, wherein said information storage element further comprises at least one parameter of said first fluid ejector that is communicable to said controller.

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10. The fluid ejection cartridge of claim 1, wherein the volume of the fluid, of said at least one drop, is in the range of from about ten femto-liter to about ten micro-liter.

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11. A bioactive fluid dispensing system for manufacturing a pharmaceutical dose on an ingestible sheet comprising:

at least one fluid ejection cartridge of claim 1;
a drop-firing controller capable of activating said first fluid ejector to eject at least one drop of the bioactive fluid onto a first portion of the ingestible sheet;
and

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a sheet advancer for advancing the ingestible sheet, wherein said sheet advancer and said drop-firing controller are capable of dispensing the bioactive fluid on a second portion of the ingestible sheet.

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12. The bioactive fluid dispensing system of claim 11, wherein said first portion and said second portion are non-overlapping.

13. The bioactive fluid dispensing system of claim 11, wherein said first portion and said second portion are separated by a perforation.

14. The bioactive fluid dispensing system of claim 11, wherein said first portion and said second portion form a first dosage form and a second dosage form.

5 15. The bioactive fluid dispensing system of claim 11, further comprising a heater for evaporating at least a portion of a solvent dispensed with the bioactive fluid on the ingestible sheet.

10 16. The bioactive fluid dispensing system of claim 11, wherein said sheet advancer and said drop-firing controller are capable of dispensing the bioactive fluid in a two dimensional array on said first portion of the ingestible sheet.

15 17. The bioactive fluid dispensing system of claim 16, wherein said sheet advancer and said drop-firing controller are capable of dispensing the bioactive fluid in a two dimensional array on said second portion of the ingestible sheet.

20 18. The bioactive fluid dispensing system of claim 11, further comprising a sheet tray for holding at least one sheet of the ingestible sheet.

19. The bioactive fluid dispensing system of claim 11, further comprising an image acquisition system.

25 20. A bioactive fluid dispensing system for manufacturing a pharmaceutical dose on an ingestible sheet comprising:
at least one fluid ejection cartridge of claim 6;
a drop-firing controller capable of activating said first fluid ejector, said at least one ink ejector, and second fluid ejector, to eject at least one drop of the
30 bioactive fluid onto a first portion of the ingestible sheet, to eject at least one drop of said ingestible ink onto a first portion of the ingestible sheet, and to eject at least one drop of a barrier material over the drop of the bioactive fluid; and

a sheet advancer for advancing the ingestible sheet, wherein said sheet advancer and said drop-firing controller dispense the bioactive fluid, said ingestible ink, and said barrier material on a second portion of the ingestible sheet.

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21. The bioactive fluid dispensing system of claim 20, wherein said sheet advancer and said drop-firing controller dispense the bioactive fluid, said ingestible ink, and said barrier material in a two dimensional array on said first portion of the ingestible sheet.

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22. The bioactive fluid dispensing system of claim 21, wherein said ingestible ink is dispensed in a machine understood form.

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23. The bioactive fluid dispensing system of claim 21, wherein said ingestible ink is dispensed in a human perceptible form.

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24. The bioactive fluid dispensing system of claim 20, wherein said sheet advancer and said drop-firing controller dispense the bioactive fluid, said ingestible ink, and said barrier material in a two dimensional array on said second portion of the ingestible sheet.

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25. The bioactive fluid dispensing system of claim 20, further comprising:
at least one heater for evaporating at least a portion of a solvent on the ingestible sheet after the bioactive fluid and ingestible ink have been dispensed onto said first portion of the ingestible sheet.

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26. The bioactive fluid dispensing system of claim 20, further comprising a position controller coupled to said sheet advancer.

27. The bioactive fluid dispensing system of claim 26, wherein said drop-firing controller and said position controller is coupled to a memory device that provides operating instructions to form said two-dimensional arrays.

5 28. The bioactive fluid dispensing system of claim 20, further comprising a sheet tray for holding at least one sheet of the ingestible sheet.

29. The bioactive fluid dispensing system of claim 20, further comprising an image acquisition system.

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30. The bioactive fluid dispensing system of claim 20, wherein said image acquisition system further comprises a camera and a light source, wherein said camera and said light source are disposed in a carriage containing said at least one fluid ejection cartridge.

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31. A bioactive fluid dispensing system for manufacturing a pharmaceutical dose on an ingestible sheet comprising:

at least one fluid ejection cartridge including:

a first reservoir containing the bioactive fluid;

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a first fluid ejector fluidically coupled to said first reservoir;

a drop-firing controller for activating said first fluid ejector wherein said first fluid ejector ejects at least one drop of the bioactive fluid onto a first portion of the ingestible sheet; and

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a sheet advancer for advancing the ingestible sheet, wherein said sheet advancer and said drop-firing controller dispense the bioactive fluid on a second portion of the ingestible sheet.

32. The bioactive fluid dispensing system of claim 31, wherein said first portion and said second portion are non-overlapping.

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33. The bioactive fluid dispensing system of claim 31, wherein the fluid ejection cartridge further comprises:

an ink reservoir containing an ingestible ink in proximity to said first reservoir; and

at least one ink ejector fluidically coupled to said ink reservoir, wherein said drop-firing controller for activating said at least one ink ejector, said at least
5 one ink ejector ejects at least one drop of said ingestible ink onto a first portion of said ingestible sheet, and said sheet advancer and said drop-firing controller dispense the bioactive fluid, and said ingestible ink on a second portion of the ingestible sheet.

10 34. The bioactive fluid dispensing system of claim 33, wherein said sheet advancer and said drop-firing controller dispense the bioactive fluid, and said ingestible ink, in a predetermined pattern on said first portion of the ingestible sheet.

15 35. The bioactive fluid dispensing system of claim 33, wherein said ingestible ink is dispensed in a machine understood form.

36. The bioactive fluid dispensing system of claim 33, wherein said ingestible ink is dispensed in a human perceptible form.

20 37. The bioactive fluid dispensing system of claim 33, wherein said first portion and said second portion form a first dosage form and a second dosage form.

25 38. The bioactive fluid dispensing system of claim 31, further comprising:

a processor coupled to said drop-firing controller, for converting a specified quantity of said bioactive fluid to be ejected onto said ingestible sheet into a number of ejections.

30 39. The bioactive fluid dispensing system of claim 38, further comprising:

a storage device coupled to said processor for storing user input information; and

a display device for displaying said user input information.

5 40. The bioactive fluid dispensing system of claim 38, further comprising a signal receiver coupled to said processor and coupled to an external communication network, wherein said signal receiver receives a signal from a remote signal source specifying said quantity of said bioactive fluid to be ejected onto said ingestible sheet.

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 41. The bioactive fluid dispensing system of claim 40, further comprising:

 a processor for a health care provider having a provider interface

 a user interface coupled to said processor; and

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 a network connection to said user interface and to said provider interface, wherein a user requests information on the bioactive fluid from said health care provider, and said health care provider sends information on the bioactive fluid to said user.

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 42. The bioactive fluid dispensing system of claim 41, wherein said network connection further comprises a wireless network coupled to said user interface and said provider interface.

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 43. The bioactive fluid dispensing system of claim 31, wherein the volume of the fluid, of said at least one drop, is in the range of from about ten femto-liter to about ten micro-liter.

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 44. A dosage form containing an ingestible sheet produced by the bioactive fluid dispensing system of claim 31.

45. A fluid ejection cartridge for dispensing a bioactive fluid onto an ingestible sheet comprising:

a reservoir containing a mixture of an ingestible ink with a bioactive fluid in said reservoir forming a printable bioactive fluid; and

5 at least one fluid ejector fluidically coupled to said reservoir, wherein said said at least one fluid ejector for ejecting at least one drop of said mixture onto the ingestible sheet.

46. A bioactive fluid dispensing system for manufacturing a
10 pharmaceutical dose on an ingestible sheet comprising:

at least one fluid ejection cartridge of claim 45;

a drop-firing controller for activating said first fluid ejector wherein said first fluid ejector to eject at least one drop of the bioactive fluid onto a first portion of the ingestible sheet; and

15 a sheet advancer for advancing the ingestible sheet, wherein said sheet advancer and said drop-firing controller dispense the bioactive fluid on a second portion of the ingestible sheet.

47. The bioactive fluid dispensing system of claim 46, wherein said
20 sheet advancer and said drop-firing controller dispense said mixture in a two dimensional array onto said first portion of the ingestible sheet.

48. The bioactive fluid dispensing system of claim 47, wherein said
mixture is dispensed in a machine understood form.

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49. The bioactive fluid dispensing system of claim 47, wherein said ingestible ink is dispensed in a human perceptible form.

50. The bioactive fluid dispensing system of claim 46, wherein the
30 volume of the fluid, of said at least one drop, is in the range of from about ten femto-liter to about ten micro-liter.

51. A dosage form containing an ingestible sheet produced by the bioactive fluid dispensing system of claim 46.

52. The bioactive fluid dispensing system of claim 46, wherein said first
s portion and said second portion are non-overlapping.

53. The bioactive fluid dispensing system of claim 46, wherein said first portion and said second portion are separated by a perforation.

10 54. The bioactive fluid dispensing system of claim 46, wherein said first portion and said second portion form a first dosage form and a second dosage form.

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